S-1125

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CHE-552

Synthetic Organic Chemistry

M.Sc. Chemistry (MSCCH)

2nd Year Examination, 2022 (Dec.)

Time : 2 Hours] **Max. Marks : 70**

Note : This paper is of Seventy (70) marks divided into two (02) Sections A and B. Attempt the questions contained in these sections according to the detailed instructions given therein.

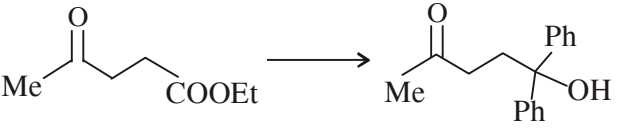
SECTION–A
(Long Answer Type Questions)

Note : Section 'A' contains Five (05) long answer type questions of Nineteen (19) marks each. Learners are required to answer any Two (02) questions only.

(2×19=38)

1. (a) What is protecting group? Discuss briefly the role of protecting group in organic synthesis.

(b) Mentioning an appropriate protecting group devise a way for the following conversion :



2. Expalin the following terms with suitable examples :

(a) Functionalisation.

(b) Synthons.

(c) Functional group interconversion.

(d) Retrosynthetic analysis.

3. (a) What is catalytic hydrogention? Discuss briefly hetrogenous and homogenous hydrogenation.

(b) Discuss the mechanism of hetrogenous and homogenous catalytic hydrogenation of alkenes.

4. Write explanatory notes on the following :

(a) Collins reagent.

(b) Selectrides.

(c) Grignard reagent.

(d) Target Molecules.

5. Write the mechanism any *three* of the following reactions :

(a) Clemmensen reduction.

(b) Michael Addition.

(c) Knovenagel condensation.

(d) Aldole condensation.

SECTION–B

(Short Answer Type Questions)

Note : Section 'B' contains Eight (08) short answer type questions of Eight (08) marks each. Learners are required to answer any Four (04) questions only. (4×8=32)

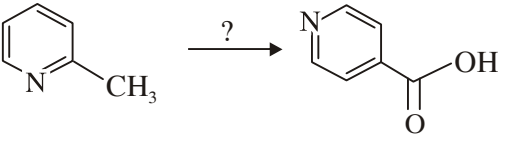
1. Write detail notes on the following :

(a) Reversal of Polarity.

(b) Convergent synthesis.

2. What is Nazarov cyclisation ? Discuss with an example.

3. Complete the following reactions and give suitable reagent wherever require :

(a) 

(b) 

4. Define the following terms and give one example in each case.

(a) Transform based strategies.

(b) Stereo chemical strategies.

5. Formulate the step involved in the conversion of formaldehyde to :

(a) Butanaldehyde.

(b) Ethyl methyl ketone.

(c) 2-Phenlethanol.

(d) Ethyl benzyl ketone.

6. Explain the following :

(a) Oxidative cleavage of alkenes and dioles.

(b) Hydrogenation of nitrites and oxime.

7. Write an explanatory note on the biological oxidation of alcohols?

8. Explain briefly the reaction of alkyl boranes with carbon monoxide.
